

*Dictyogenus* and *Isogenus* should be neuter, inasmuch as the word genus is of that gender in both Latin and Greek ( $\gamma\epsilon\nu\omicron\varsigma$ ). Two species-names should therefore be *Dictyogenus alpinum* and *D. ventrale*.

*Etrocorema* is neuter; the species-name should be *nigrogeniculatum*.

*Perlinodes* and *Perlodes* should be masculine according to Art. 30.a.ii (examples) of the Code; the names of 4 species should be *Perlinodes aureus*, *Perlodes frisonanus*, *P. intricatus*, and *P. jurassicus*.

*Pseudomegarcys japonicus* should be *P. japonica*.

*Taenionema* should be neuter: *T. californicum*, *T. frigidum*, *T. nigripenne*, *T. oregonense*, *T. pacificum*, *T. pallidum*, *T. raynorum*, *T. van-duzeum*.

The generic name *Apteryoperla* is a strange formation. It probably should have been *Apterygoperla*, but there is no justification under the Code for emending it. A similar condition prevails in regard to the species-name of *Trinotoperla woodwardi*; emendation to *woodwardi* cannot strictly be justified.

A compilation of the dates of original description of the presently recognized species of Plecoptera may be charted as shown in Figure 7. For similar charts of other groups and discussion, see Steyskal (1965, 1967, 1973) and Vecht (1973). The sharply rising curve, with no indication of reversal, indicates that the order is about half known. About as many species as have already been named still await discovery and naming.

#### LITERATURE CITED

- ILLIES, J. 1966. Katalog der Rezenten Plecoptera. Das Tierreich, Lfg. 83.
- STEYSKAL, G. C. 1965. Trend curves of the rate of species description in zoology. *Science*, N.Y. 149(3686):880-882.
- . 1967. Another view of the future of taxonomy. *Syst. Zool.* 16:265-268.
- . 1973. Notes on the growth of taxonomic knowledge of the Psocoptera and on the grammar of the nomenclature of the order. *Proc. Ent. Soc. Wash.*, 75:160-164.
- VECHT, J. VAN DER. 1973. Insekten Zonder Tal: een Uitdaging. *Versl. Zitt. Wisnatuurk. Afd. K. Akad. Wet. Amst.* 82(3):41-48.
- ZWICK, P. 1973. Insecta: Plecoptera, Phylogenetisches System und Katalog. Das Tierreich, Lfg. 94.

#### NUMERICAL TAXONOMIC ANALYSIS OF RELATIONSHIPS IN PLECOPTERA.

BY CHARLES H. NELSON, *Department of Biology, University of Tennessee, Chattanooga, Tennessee.*

The application of numerical taxonomic procedures for analyzing phyletic relationships within the Plecoptera is undertaken. In order

to demonstrate the usefulness of these methods, 25 two-state and 13 multi-state characters were obtained from the species comprising the family Pteronarcidae. Quantitative phenetic procedures used to analyze these characteristics included the single-linkage cluster analysis, un-weighted pair-group method using arithmetic averages (UMPGA), weighted pair-group method using arithmetic averages (WMPGA) and the function-point cluster method (FPCM). Quantitative cladistic procedures included the weighted invariant step strategy (WISS) and various methods for forming Wagner networks and trees. In addition, a Wagner network and several Wagner trees were constructed for the major taxonomic groups of the Plecoptera using data obtained from Zwick's (1973) study. The phenetic clustering techniques when applied to the pteronarcid data resulted in the identification of three principle clusters which agreed with the accepted classification of this family. In general, cladistic analyses agreed closely with those results obtained from using the classical method of Hennig, indicating that numerical cladistic procedures are consistent with the principles of "phylogenetic systematics".

#### SCIENTIFIC ILLUSTRATION-TECHNIQUES AND MEDIA.

BY GEORGE L. VENABLE AND L. MICHAEL DRUCKENBROD, *National Museum of Natural History, Smithsonian Institution, Washington, D.C.*

An introduction was given into the goals and functions of scientific illustration, and its' advantages over photography. The types of illustrations were discussed as were the equipment and media used in each. Step by step instruction was given for both line and tone illustrations, and various methods mentioned to enable the scientist to produce his/her own illustrations, both economically, and accurately.

#### NOTES ON THE NEARCTIC GENERA OF PERLIDAE.

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Each of seven Nearctic Acroneurine genera are characterized in terms of male tergal modifications, male hammer, male aedeagus, ovum, nymphal head and pronotum, and nymphal cerci. These data support Illies (1966) elevation of *Attaneuria*, *Beloneuria*, *Doroneuria*, *Eccoptura* and *Hesperoperla* to generic status, and the recent (Stark and Gaufin, 1974) removal of *Calineuria* from the synonymy of *Doroneuria*. The restricted definition of *Acroneuria* emphasizes the need for careful study of Oriental material currently placed in that genus.

The male aedeagus and female ovum are shown to have highly diagnostic characters for species recognition in *Acroneuria*, *Neoperla* and *Paragnetina*.